

REMARKS

Responsive to the Office Action mailed February 24, 2006, Applicants provide the following. Claims 1, 3, 8-9, 11-12, 32 and 34-35 have been amended without adding new matter. Claims 36-66 have been added without adding new matter. Claims 16-31 have been canceled without prejudice or disclaimer. Fifty (50) claims remain pending in the application: Claims 1-15 and 32-66. Reconsideration of claims 1-15 and 32-35 in view of the amendments above and remarks below and consideration of new claims 36-66 is respectfully requested.

By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Information Disclosure Statement

1. Applicants thank the Examiner for returning initialed IDS forms for the IDS filed April 29, 2005, May 2, 2005, November 1, 2005, November 28, 2005. Additionally, Applicants request that the Examiner consider the references provided in the electronic IDS filed March 1, 2006 (EFS ID: 104281), after the mailing of this Office Action and provide Applicants with an initialed copy indicating that the references were considered.

Claim Objections

2. Claim 30 stands objected to for being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicants traverse this rejection; however, Applicants have canceled claim 30 with prejudice or disclaimer. Thus, it is submitted that the objection is overcome and should be withdrawn.

Claim Rejections - 35 U.S.C. §103

3. Claims 1-3, 7-14 and 28-35 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,956,248 (Williams et al.) in view of U.S. Patent No. 6,230,089 (Lonn et al.).

While Applicants traverse the rejection, Claims 28-31 have been canceled without prejudice or disclaimer. Accordingly, Applicants submit this cancellation should not be viewed as the surrender of the subject matter of claims 28-31 or as a surrender of broader subject matter than any of claims 28-31. Applicants specifically preserve the right to present these claims in their originally filed form in a continuing application.

With respect to claims 1-3, 7-14 and 32-35, including independent claims 1, 8 and 32, Applicants agree that Williams does not disclose or suggest that the expansion module include a second microcontroller capable of communicating with the first microcontroller, such as variously recited in claims 1, 8 and 32. However, it is asserted that the teaching of Lonn suggests this claim limitation.

Applicants traverse the rejection and respectfully submit that it would not be obvious to modify the station modules of Williams to include a microcontroller such as taught by Lonn. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. See MPEP 2143.01. Moreover, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See MPEP 2143.01.

In this case, Williams teaches a simple irrigation controller 2 into which station modules 22 may be plugged. The station modules 22 provide additional outputs under control of the microprocessor of the controller. According to Williams, the invention comprises a housing having microprocessor means including a parallel output bus within the housing having a plurality of separate station output pins for controlling the irrigation stations with one station output pin used for controlling each station (see col. 1, lines 54-61). Each module 22 has a plug connection for allowing the module 22 to be plugged into one set 40 of four output pins 42 on a parallel output bus in controller 2 (see col. 5, lines 41-43). In each set 40 of pins 42, one pin is

assigned to control one of the terminals 24a and 24b, respectively, another pin is a ground connection, and the remaining pin is a 5V power input to module 22 (see col. 5, lines 44-47). Thus, when module 22 is in place and is plugged into the parallel output bus, controller 2 will activate the stations connected to module 22 as called for by the watering program being executed by controller 2 (see col. 5, lines 47-51). FIG. 9 clearly illustrates two separate inputs, each corresponding to a specific terminal 24a, 24b of the module 22. As shown in FIG. 8, a separate valve is connected to each terminal of the module. Each terminal is connected to its own transistor/TRIAC combination 70/72 (see col. 6, lines 44-45). When the controller 2 determines that a particular valve V should be opened, it does so by activating the appropriate transistor 70 to close the appropriate TRIAC 74 (see col. 6, lines 46-48). It is clear that all functionality to efficiently operate the controller 2 is provided, and no further functionality, in particular, within the station modules 22 is described or suggested.

Accordingly, in view of the teaching of Williams, there is no suggestion or motivation to modify the station modules to include a microprocessor, like the secondary controllers of the ECUs of Lonn. The *asserted* motivation for modifying the station modules of Williams to include a microprocessor is provided on page 7, last paragraph of the Office Action, stating that:

it would provide a flexible control system wherein the primary and secondary controllers (or expansion modules) *share information to operate more efficiently*, the primary controller *does not necessarily dictate, control, or otherwise supervise the operation of the secondary controllers* (emphasis added).

However, the operation of the controller 2 with the station modules 22 is inherently *already efficient*. Adding a microprocessor to the station modules 22 adds an additional layer of complexity and inefficiency to the controller. Furthermore, there is no suggestion in Williams that the station modules 22 any share information with the controller 2, i.e., there is no need for the station modules 22 to share information with the controller 2. Additionally, there is no suggestion in Williams that the controller 2 *not* dictate, control or supervise the station modules 22 does, i.e., there is no need for the controller 2 to *not* dictate,

control or supervise the station modules 22. Such would add considerable complexity and inefficiency to the controller of Williams.

A prior art reference must be considered in its entirety, i.e., as a whole. In other words, the context of the need for the microcontrollers of the secondary controllers of Lonn must be considered. Lonn discloses a turf maintenance system that allows communications between a plurality of electronic control units (ECU's), each having a microcontroller (see processor 102 of FIG. 3 and 150a of FIG. 4). According to Lonn, the ECUs (both primary and secondary) have similar hardware but operate using different software (see col. 3, lines 6-8). Each of the secondary controllers controls various functions and features (see col. 3, lines 19-21). The controllers are each connected to a common bus network so that the primary controller can communicate (share information) with the secondary controllers (see col. 3, lines 4-5 and 23-25). Furthermore, the primary controller does not necessarily dictate, control, or otherwise supervise the operation of the secondary controllers (see col. 3, lines 23-27). Accordingly, it is inherent that a microcontroller is needed in each secondary controller of Lonn, at least because of the need to share information with the primary controller, the differences in functionality in the various secondary controllers, and the fact that the secondary controller is not necessarily controlled or supervised by the primary controller.

None of these reasons leading to the need for a microcontroller in the secondary controllers of Lonn are present in the controller 2 of Williams. That is, there is no need for the sharing of information between the controller 2 and the station modules 22, the station modules 22 all have the same functionality, and the station modules are controlled by the controller 2.

Furthermore, according to MPEP 2143.01, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In this case, the addition of a microcontroller for purposes of allowing the station modules and the controller to share information and such that the controller 2 does not necessarily *dictate*, *control*, or otherwise *supervise* the station modules changes the principle of operation of the controller. Similarly, according to MPEP 2143.01, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then

there is no suggestion or motivation to make the proposed modification. In this case, adding microcontrollers to the station modules 22 to share information and so that the controller 2 does not necessarily *dictate, control*, or otherwise *supervise* the station modules would render the controller unsatisfactory for its intended purpose. That is, the controller 2 is specifically configured such that the controller 2 is programmed with watering programs and controls and supervises the station modules 22 in order to implement the preprogrammed watering programs. If the controller does not control or supervise the station modules, the controller 2 will not function as intended.

Therefore, at least since no motivation is provided in Lonon or otherwise to suggest modifying the station modules 22 of Williams to include a microcontroller as the recited modules of claims 1, 8 and 32, nor is any desirability of such modification provided, it is submitted that the proposed combination of Williams and Lonon does not render claims 1, 8 and 32, and any claims dependent thereon, obvious. Furthermore, at least since the proposed modification would change the principle of operation of the Williams controller and would render the Williams controller unsatisfactory for its intended purpose, it is submitted that the proposed combination of Williams and Lonon does not render claims 1, 8 and 32, and any claims dependent thereon, obvious. Therefore, for at least these reasons, it is submitted that the rejection is overcome and should be withdrawn.

Additionally, Applicants have variously amended independent claims 1, 8 and 32 in the interest of obtaining the timely issuance of subject matter in accordance with one embodiment of the invention. Thus, the amendments of the originally filed independent claims and the cancellation of some claims made herein do not represent a surrender of any subject matter and Applicants specifically preserve the right to present these claims in their originally filed form in a continuing application. Accordingly, claims 1, 8 and 32 have been variously amended to recite:

wherein the other of said plurality of discrete electrical output connector sets to which the expansion module is electrically coupled may be any one of said plurality of discrete electrical output connector sets capable of

being coupled to a given expansion module independent of the electrical coupling of another expansion module to another of said plurality of discrete electrical output connector sets (claim 1)

wherein each expansion module may be mounted to any one of the plurality of module receiving locations other than the first one independent of the mounting of another expansion module to another of the plurality of the module receiving locations (claim 8)

wherein each expansion module assembly may be mounted to any one of the plurality of module receiving locations independent of the mounting of another expansion module assembly to another of the plurality of the module receiving locations (claim 32)

Support for such amendment can be found at least at page 16, line 11 through page 17, line 2 of the specification and FIGS. 13-14 and 17-18. It is submitted that such a controller as recited to include a microcontroller in the expansion module and the above limitation is also not anticipated or rendered obvious by the art of record; and thus, for at least this further reason, claims 1, 8 and 32, and any claims dependent thereon, are allowable.

4. Claims 4-6 and 15-27 stand rejected under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,956,248 (Williams et al.) and U.S. Patent No. 6,230,089 (Lonn et al.) in further view of U.S. Patent No. 5,602,728 (Madden et al.).

While Applicants traverse the rejection, Claims 16-27 have been canceled without prejudice or disclaimer. Accordingly, Applicants submit this cancellation should not be viewed as the surrender of the subject matter of claims 16-27 or as a surrender of broader subject matter than any of claims 16-27. Applicants specifically preserve the right to present these claims in their originally filed form in a continuing application.

Claims 4-6 depend on claim 1, while claim 15 depends on claim 8. It has been shown above that the proposed combination of Williams and Lonn does not render independent claims 1 and 8 obvious. Although Madden appears to disclose a microcontroller 115 in an expansion board 17, this expansion microcontroller 115 is for communications with the main processor 52. Similar to Lonn, Madden provides no suggestion, or desirability to add such a microcontroller to the station modules of Williams, and such a change would change the

principle of operation of the Williams controller and would render the Williams controller unsatisfactory for its intended purpose. Thus, Madden provides no additional teaching in combination with Williams and Lonn to render independent claims 1 and 8 obvious. Therefore, it is respectfully submitted that the rejection of dependent claims 4-6 and 15 is overcome and should be withdrawn.

New Claims

5. Newly submitted claims 36-66 are believed to be allowable because they are directed to that which is not shown or suggested in the prior art. Support for the limitations of the newly presented claims is as follows.

Support for new claims 36-38, 52-54 and 64 can be found at least at page 16, line 11 through page 17, line 2 of the specification and FIGS. 13-14 and 17-18.

Support for new claims 39-43, 45-46, 55-58 and 61-63 can be found at least at page 15, line 31 through page 16, line 18 of the specification.

Support for new claims 44, 49 and 50 can be found at least in originally filed claims 1, 8, 32 and at page 15, line 31 through page 16, line 18 of the specification.

Support for new claim 47 can be found at least in originally filed claim 2.

Support for new claims 48, 59 and 65 can be found at least at in originally filed claim 3.

Support for new claim 51 can be found at least at claim 1, at page 16, line 11 through page 17, line 2 of the specification and FIGS. 13-14 and 17-18.

Support for new claim 60 can be found at least at in originally filed claim 1 and at page 15, line 31 through page 16, line 18 of the specification.

Support for new claim 66 can be found at least in originally filed claims 1, 2, 4, 7 and 33, at page 15, line 31 through page 16, line 18 of the specification, at page 16, line 11 through page 17, line 2 of the specification and FIGS. 13-14 and 17-18.

CONCLUSION

Applicants submit that the above amendments and remarks place the pending claims in a condition for allowance. Therefore, a Notice of Allowance is respectfully requested.

Respectfully submitted,

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